# Summer 2005 Electricity Supply and Demand Outlook

## Resource Assumptions

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# Overview

- Summer 2005 Monthly Electricity Outlooks
  - Statewide, CA ISO, NP26 and SP26
- Resource Assumptions
- Impact of Northwest Hydro Conditions
- SP26 + NP26 Tables ≠ CA ISO Table

# 2005 Detailed Monthly Electricity Outlook
# California Statewide

| Line | | June | July | August | September |
|---|---|---|---|---|---|
| 1 | Existing Generation[1] | 53,808 | 53,718 | 54,773 | 54,902 |
| 2 | Retirements (Known) | -850 | | | |
| 3 | Retirements (High Risk) | -1,192 | | | |
| 4 | High Probability CA Additions | 1,952 | 1,055 | 129 | 1 |
| 5 | Forced Outages | -3,500 | -3,500 | -3,500 | -3,500 |
| 6 | Zonal Transmission Limitation[2] | -800 | -800 | -800 | -800 |
| 7 | Net Interchange [3] | 12,921 | 12,921 | 12,921 | 12,921 |
| 8 | Total Supply (MW) | 62,339 | 63,394 | 63,523 | 63,524 |
| 9 | 1-in-2 Summer Temperature Demand (Normal) | 54,900 | 57,365 | 57,913 | 57,015 |
| 10 | Projected Resource Margin (1-in-2)* | 17.3% | 13.3% | 12.2% | 14.4% |
| 11 | 1-in-10 Summer Temperature Demand (Hot) | 58,667 | 61,003 | 61,885 | 60,937 |
| 12 | Projected Resource Margin (1-in-10)* | 7.9% | 4.9% | 3.3% | 5.3% |
| 13 | MW needed to meet 7.0% Reserve | 0 | 1,045 | 1,860 | 844 |
| 14 | Surplus MW above 7.0% Reserve | 400 | 0 | 0 | 0 |

[1] Dependable capacity by station includes 1,080 MW of stations located South of Miguel

[2] Values provided by CA ISO.

[3] 2005 estimate of the following Net Imports: **DC imports 2,000 MW, SW imports 2,500 MW, NW imports (COI) 4,000 MW, North of Miguel 400 MW, LADWP Control Area imports 2,834 MW, IID Imports 184 MW** and Dynamic Resources 1,003 MW**. Imports supplying own reserves are in bold text.**

* Does not reflect uncertainty for "Net Interchange" or "Forced Outages" which can result in significant variation in Resource Margin. Calculated as ((Supply - **Imports with own reserves**)/(Demand - **Imports with own reserves**))-1

# 2005 Detailed Monthly Electricity Outlook
# CA ISO Control Area

| Line | | June | July | August | September |
|---|---|---|---|---|---|
| 1 | Existing Generation[1] | 45,969 | 45,457 | 46,512 | 46,641 |
| 2 | Retirements (Known) | -530 | | | |
| 3 | Retirements (High Risk) | -1,192 | | | |
| 4 | High Probability CA Additions | 1,210 | 1,055 | 129 | 1 |
| 5 | Forced Outages | -2,800 | -2,800 | -2,800 | -2,800 |
| 6 | Zonal Transmission Limitation[2] | -800 | -800 | -800 | -800 |
| 7 | Net Interchange [3] | 9,303 | 9,303 | 9,303 | 9,303 |
| 8 | Total Supply (MW) | 51,160 | 52,215 | 52,344 | 52,345 |
| 9 | 1-in-2 Summer Temperature Demand (Normal) | 45,085 | 47,004 | 47,134 | 46,679 |
| 10 | Projected Resource Margin (1-in-2)* | 16.5% | 13.5% | 13.4% | 14.8% |
| 11 | 1-in-10 Summer Temperature Demand (Hot) | 48,323 | 50,384 | 50,526 | 50,043 |
| 12 | Projected Resource Margin (1-in-10)* | 7.1% | 4.4% | 4.3% | 5.5% |
| 13 | MW needed to meet 7.0% Reserve | 0 | 1,115 | 1,138 | 621 |
| 14 | Surplus MW above 7.0% Reserve | 35 | 0 | 0 | 0 |

[1] Dependable capacity by station includes 1,080 MW of stations located South of Miguel

[2] Values provided by CA ISO.

[3] 2004 CA ISO estimates **DC imports of 1,500 MW,** Path 26 2,700 MW, **SW imports 2,500 MW,** Dynamic 1,003 MW and CEC estimate of **LADWP imports of 1,000 MW**. 2005 estimate increases **DC transfer capability by 500 MW**, Path 26 by 300 MW, **North of Miguel by 400 MW** and **Northwest (minus SMUD) 2400 MW.**
Imports supplying own reserves are in bold text.

* Does not reflect uncertainty for "Net Interchange" or "Forced Outages" which can result in significant variation in Resource Margin. Calculated as ((Supply - **Imports with own reserves**)/(Demand - **Imports with own reserves**))-1

# 2005 Detailed Monthly Electricity Outlook
# CA ISO Northern Region (NP26)

| Line | | June | July | August | September |
|---|---|---|---|---|---|
| 1 | Existing Generation | 25,883 | 25,086 | 25,661 | 25,661 |
| 2 | Retirements (Known) | | | | |
| 3 | Retirements (High Risk) | -1,046 | | | |
| 4 | High Probability CA Additions | 249 | 575 | | |
| 5 | Forced Outages | -1,600 | -1,600 | -1,600 | -1,600 |
| 6 | Zonal Transmission Limitation[1] | 0 | 0 | 0 | 0 |
| 7 | Net Interchange [2] | 2,400 | 2,400 | 2,400 | 2,400 |
| 8 | Total Supply (MW) | 25,886 | 26,461 | 26,461 | 26,461 |
| 9 | 1-in-2 Summer Temperature Demand (Normal) | 20,839 | 21,289 | 21,003 | 20,233 |
| 10 | Projected Resource Margin (1-in-2)* | 27.4% | 27.4% | 29.3% | 34.9% |
| 11 | 1-in-10 Summer Temperature Demand (Hot) | 22,230 | 22,710 | 22,405 | 21,584 |
| 12 | Projected Resource Margin (1-in-10)* | 18.4% | 18.5% | 20.3% | 25.4% |
| 13 | MW needed to meet 7.0% Reserve in NP26 | 0 | 0 | 0 | 0 |
| 14 | Surplus MW above 7.0% Reserve in NP26 | 2,267 | 2,329 | 2,655 | 3,534 |

[1] Values provided by CA ISO.

[2] 2004 estimates based on CA ISO provided levels of NW and SMUD interchange values during June-July 2004 and assuming flows are S-N on Path 26.

* Does not reflect uncertainty for "Net Interchange" or "Forced Outages" which can result in significant variation in Resource Margin. Calculated as ((Supply - **Imports with own reserves**)/(Demand - **Imports with own reserves**))-1

# 2005 Detailed Monthly Electricity Outlook
# CA ISO Southern Region (SP26)

| Line | | June | July | August | September |
|---|---|---|---|---|---|
| 1 | Existing Generation[1] | 20,086 | 20,371 | 20,851 | 20,980 |
| 2 | Retirements (Known) | -530 | | | |
| 3 | Retirements (High Risk) | -146 | | | |
| 4 | High Probability CA Additions | 961 | 480 | 129 | 1 |
| 5 | Forced Outages | -1,200 | -1,200 | -1,200 | -1,200 |
| 6 | Zonal Transmission Limitation[2] | -800 | -800 | -800 | -800 |
| 7 | Net Interchange [3] | 9,903 | 9,903 | 9,903 | 9,903 |
| 8 | Total Supply (MW) | 28,274 | 28,754 | 28,883 | 28,884 |
| 9 | 1-in-2 Summer Temperature Demand (Normal) | 24,782 | 26,275 | 26,691 | 27,001 |
| 10 | Projected Resource Margin (1-in-2)* | 18.5% | 12.2% | 10.5% | 8.9% |
| 11 | 1-in-10 Summer Temperature Demand (Hot) | 26,667 | 28,273 | 28,721 | 29,054 |
| 12 | Projected Resource Margin (1-in-10)* | 7.7% | 2.1% | 0.7% | -0.7% |
| 13 | MW needed/(Excess) to meet 7.0% Reserve in SP26 | 0 | 1,085 | 1,435 | 1,791 |
| 14 | Surplus MW above 7.0% Reserve in SP26 | 153 | 0 | 0 | 0 |

[1] Dependable capacity by station includes 1,080 MW of stations located South of Miguel

[2] Values provided by CA ISO.

[3] 2004 CA ISO estimates **DC imports of 1,500 MW,** Path 26 2,700 MW, **SW imports 2,500 MW,** Dynamic 1,003 MW and CEC estimate of **LADWP imports of 1,000 MW**. 2005 estimate increases **DC transfer capability by 500 MW**, Path 26 by 300 MW and **North of Miguel by 400 MW**. Imports supplying own reserves are in bold text.

* Does not reflect uncertainty for "Net Interchange" or "Forced Outages" which can result in significant variation in Resource Margin. Calculated as ((Supply - **Imports with own reserves**)/(Demand - **Imports with own reserves**))-1

# Line 1: Existing Generation

| | SP26 | NP26 | TOTAL |
|---|---|---|---|
| **CA ISO Control Area** | | | |
| Merchant Thermal | 12,902 | 12,792 | 25,694 |
| Municipal Thermal | 377 | 529 | 906 |
| IOU Retained | 2,996 | 2,343 | 5,339 |
| Qualifying Facilities | 2,764 | 2,803 | 5,567 |
| Derated Hydro | 1,047 | 7,416 | 8,463 |
| **TOTAL CA ISO** | **20,086** | **25,883** | **45,969** |
| Non-CA ISO Municipal | 5,845 | 1,994 | 7,839 |
| **STATEWIDE TOTAL** | **25,931** | **27,877** | **53,808** |

- As of August 1, 2004
- Non-CA ISO includes thermal and hydro

# Lines 2-4: Additions and Retirements

## CA ISO Control Area

### SP26

#### Additions

| Name | MW | Expected Online Date |
|---|---|---|
| Etiwanda 3 | 320 | 9/9/2004 |
| Aggregated Renewable | 2 | 1/1/2005 |
| Big Bear | 8 | 1/31/2005 |
| Clearwater Cogen | 30 | 1/31/2005 |
| Paramont | 2 | 1/31/2005 |
| Anaheim | 2 | 2/15/2005 |
| Pastoria Phase 1 | 240 | 3/31/2005 |
| Restart Mothballed Plants* | 175 | 5/1/2005 |
| Magnolia ISO Control Area | 142 | 5/25/2005 |
| Ramco | 40 | 6/1/2005 |
| Pastoria Phase 2 | 480 | 6/30/2005 |
| Malburg | 129 | 7/31/2005 |
| Aggregated Renewable | 1 | 8/31/2005 |
| | **1,571** | |

#### Retirements

| Name | MW | Date |
|---|---|---|
| Long Beach (Known) | -530 | 12/31/2004 |
| Coolwater 1/2 (High Risk) | -146 | 12/31/2004 |
| | **-676** | |

### NP26

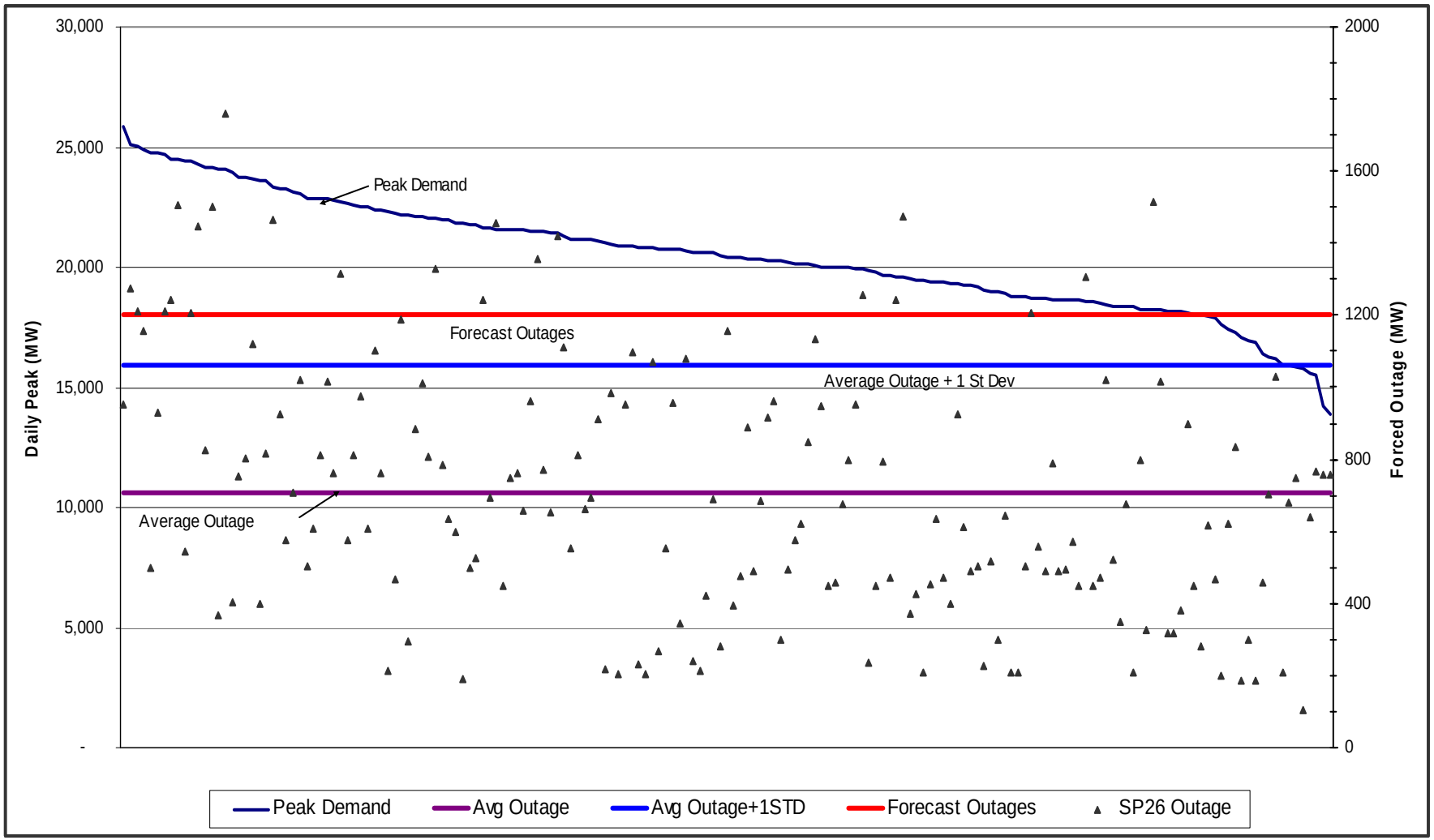
#### Additions

| Name | MW | Expected Online Date |
|---|---|---|
| Aggregated Renewable | 1 | 1/1/2005 |
| Fresno Cogen Expansion | 21 | 2/28/2005 |
| Pico Power | 141 | 3/15/2005 |
| Kings River Peaker | 86 | 6/1/2005 |
| Metcalf | 575 | 6/30/2005 |
| | **824** | |

#### Retirements (High Risk)

| Name | MW | Date |
|---|---|---|
| Pittsburg 7 | -720 | 12/31/2004 |
| Morro Bay 1/2 (*mothball*) | -326 | |
| | **-1,046** | |

# Line 5: Forced Outages (SP26)



# Line 6: Zonal Transmission Limitations

- Capacity contained in line 1 that is unable to serve load due to transmission constraints.

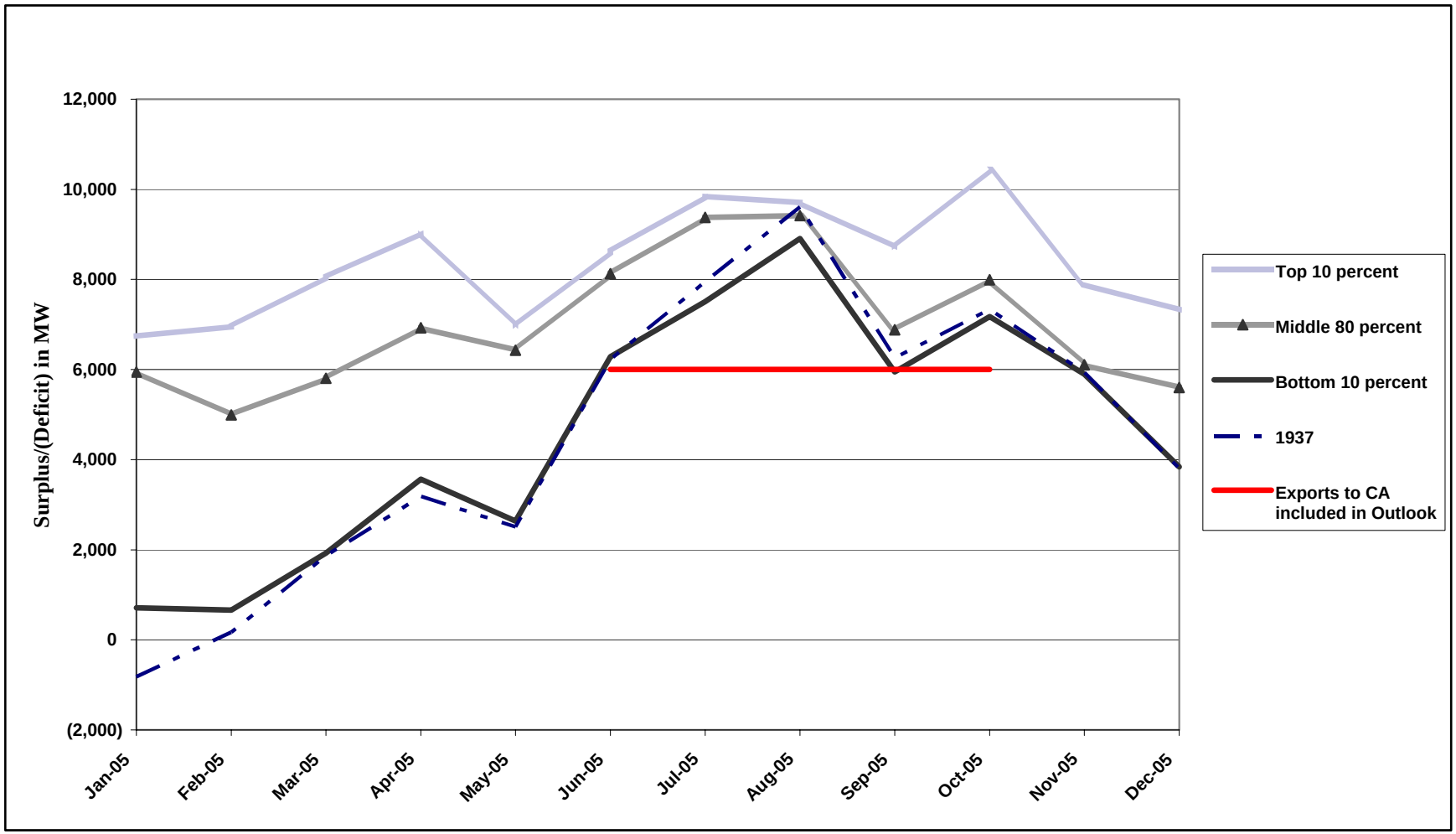
- Most from 1,080 MW of contracted generation in Mexico that cannot be fully delivered into CA ISO

# Line 7: Net Interchange

| SP26 Net Interchange | |
|---|---|
| Path 26 | 3,000 |
| Net of DC Line | 2,000 |
| Net SW Imports | 2,900 |
| Net Dynamics | 1,003 |
| Net LADWP Control Area Imports | 1,000 |
| | |
| **Total** | **9,903** |
| **NP26 Net Interchange** | |
| Path 26 | - |
| Net NW Imports | 4,000 |
| Net SMUD Exports | (1,600) |
| | |
| **Total** | **2,400** |

- Based on CA ISO metered data.
- Nets out exports
- SP26 includes increases of:
  - Pacific DC Line 500 MW
  - Path 26 300 MW
  - Miguel 400 MW
- LADWP imports include CA ISO municipal portion of Intermountain Power

# BPA Forecast of Northwest Regional Surplus/Deficit by Water Year




Source: Bonneville Power Administration 2003 Pacific Northwest Loads and Resources Study, July 2004

# NP26 and SP 26 Tables Do Not "Add Up" to CA ISO Table

| Line | | SP26 August | NP26 August | Total of SP and NP 26 Forecasts | CA ISO August | Difference | |
|---|---|---|---|---|---|---|---|
| 1 | Existing Generation[1] | 20,851 | 25,661 | 46,512 | 46,512 | 0 | |
| 2 | Retirements (Known) | | | 0 | | 0 | |
| 3 | Retirements (High Risk) | | | 0 | | 0 | |
| 4 | High Probability CA Additions | 129 | | 129 | 129 | 0 | |
| | | | | 0 | | 0 | |
| 5 | Forced Outages [2] | -1,200 | -1,600 | -2,800 | -2,800 | 0 | |
| 6 | Zonal Transmission Limitation[2] | -800 | 0 | -800 | -800 | 0 | |
| 7 | Net Interchange [3] | 9,903 | 2,400 | **12,303** | **9,303** | **3,000** * | |
| 8 | Total Supply (MW) | 28,883 | 26,461 | 55,344 | 52,344 | 3,000 | |
| | | | | | | 0 | |
| 9 | 1-in-2 Summer Temperature Demand (Normal) | 26,691 | 21,003 | 47,694 | 47,134 | 561 | |
| 10 | Projected Resource Margin (1-in-2)* | 10.5% | 29.3% | | 14.3% | | |
| | | | | | | 0 | |
| 11 | 1-in-10 Summer Temperature Demand (Hot) | 28,721 | 22,405 | **51,126** | **50,526** | **600** | coincidence factor |
| 12 | Projected Resource Margin (1-in-10)* | 0.7% | 25.4% | | 4.3% | | |
| 13 | MW need/(Excess) to meet 7.0% Reserves | 1,435 | (2,656) | **-1,221** | **1,138** | **-2,358** | |
| | | | | | | **3,000** * | |
| | | | | | | **642** | |
| | | | | Subtract the coincidence factor | | **-600** | |
| | | | | | | **42** | |
| | | | | Subtract the 7% reserve from the concidence factor | | **-42** | |
| | | | | | | **0** | |

* The outlook for NP26 assumes no exports to SP26 as NP peaks in June or July and SP peaks in late Aug or early Sep.